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ABSTRACT

Schema Theory, the use of the learner's background knowledge for the building of new knowledge, is applied to improving reading comprehension skills and teaching vocabulary words and concepts to learning disabled students. Semantic mapping is a vocbulary strategy which produces the interaction between prior knowledge in a graphic form. For purposes of vocabulary development, semantic mapping extends knowledge by displaying words in categories to help familiarize the learner with new words in relation to known words. Ten steps for teaching with semantic mapping include selecting the focal word or concept, asking the students to think of as many words as possible related to the focal word or concept, using the target words in sentences, and finally, reading the selection. The procedure of semantic mapping is also applied to the identification of words through the mapping of word families. A three-page list of references and three examples of mapping are offered. (DB)

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Teaching Vocabulary to the L.D. Student from an Interactive View of Reading Comprehension

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Abstract

The authors discuss the application of Schema Theory as the basis for instructional strategies for teaching vocabulary development and increasing reading comprehension. Schema theory implies the use of the learner's background knowledge for the building of new knowledge of vocabulary words and/or concepts. The authors provide examples for increasing vocabulary and comprehension skills.

Teaching Vocabulary to the Mildly Handicapped Learner

Reading is a basic skill necessary for acquiring information. The majority of mildly handicapped students are first identified by teachers due to their inability to acquire skills necessary to be efficient readers. Lewis (1983) asserts that learning disabled students fail to use their cognitive resources effectively and, therefore, experience difficulty in acquiring the skills required for efficient reading. Other researchers report that mildly handicapped learners' use of faulty mnemonic strategies (Morrison, Geordani & Nagi, 1977) and less efficient use of learning strategies that involve clustering and organizing new information for later recall (Wong, Wong & Foth, 1977). Therefore, the development of effective and efficient procedures to teach vocabulary and other reading skills is critical.

Pearson and Johnson (1980), among others, strongly advocate the development of instructional strategies that link the learner's prior knowledge to the new knowledge. Research in the area of prior knowledge or background knowledge is often referred to as schema theory. The theory seeks to explain how new information acquired while reading needs to be linked with old information (prior knowledge) already stored in the head

(Bobrow & Norman, 1975; Minsky, 1976; Johnson, 1980; and Rumelhart, 1980) for better comprehension. Rumelhart (1980) maintains that schemata are the building blocks of cognitive skills and that it incorporates the learner's repertoire of background experiences.

SCHEMA THEORY: A THEORETICAL CONSTRUCT

Schema theory addresses itself to how information is stored in memory, how it is retrieved from memory, and how information is used to comprehend (Rumelhart, 1976, Adams & Collins, 1977). The underlying supposition of schema theory is that everything an individual learns is stored in the brain in a somewhat "conceptual filing system" (Rumelhart, 1976, Adams & Collins, 1977). The storehouse of knowledge grows and is modified as the individual learns new experiences. For example, one has schemata (background experiences) for such events as birthday parties, objects, actions, goals, people and abstract ideas or feelings that can be retrieved whenever one sees or hears a word (Pearson & Spiro, 1982). Thus, one's schemata are the building blocks of cognition, in which the structure of comprehension is built.

Johnson (1981, p. 351) upholds that comprehension in metaphor is "building bridges between the new and the known." Prior knowledge is the key ingredient necessary to understand

and remember what one reads. The broader the repertoire of background experiences the more efficient the comprehension. One way to increase efficient comprehension skills recommended by Johnson (1981) is through interactive type of instructional strategies, that is, activities that allow the interaction of known knowledge to prior knowledge.

Comprehension

The schema-theoretic perspective of comprehension is "an interface between the reader and the text and/or an interaction between the reader's prior knowledge and the information on the page (Pickens, 1982, p. 37). Schema theory suggests that comprehension is much larger than the sum of its parts (e.g., literal, inferential, evaluation or critical) and that the learner's background knowledge and culture when related to text improves comprehension (Jogdeo & Anderson, 1978; Pearson & Spiro, 1982; Pickens, 1982; and Steffenson, 1978.) Therefore, the teacher's task is to help the learner relate new knowledge to previously learned knowledge.

Some children bring schema deficiencies to the reading task (Pearson & Spiro, 1982). One could conjecture and assume that this could also be true for most mildly handicapped learners. The first problem, schema availability, occurs when the learner lacks background knowledge to make sense out of

a text. The second deficiency is schema selection, that of possessing prior knowledge but failing to bring it into focus. Finally, schema maintenance, is a processing deficit rather than a knowledge deficit. That is, the reader simply fails to maintain focal attention to the theme of the text due to directing too much attention to the visual analysis of print or the text structure (Pearson & Spiro, 1982). To remediate or compensate for this inadequacy, the teacher takes the role of a facilitator. This role requires the teacher to provide for the reader, prior to the reading task, the conceptual base necessary to understand the print and to alert the reader to information they already possess; prior knowledge that can be used to comprehend the new incoming information (Swaby, 1984).

Vocabulary Development

It is generally accepted that the larger the number of words the learner has mastered, the better the comprehension (Davis, 1944, 1968, 1972; Thurstone, 1946; Thorndike, 1971). The most common characteristics of most readers have been a poor vocabulary and the lack of experience that they can relate to the material the learner is made to read at school. Mildly handicapped learners fail to understand the passage if some words are not within their experience, infrequently used by the learner, or used in a specialized or technical

way that is different from the more commonly used meanings. Thus, many teachers proceed by overtaxing them with vocabulary drills that are usually carried out in isolation.

Schema theory suggests that a person who knows a word well knows other words and ideas that are related to it. It is this network of ideas that enable the individual to comprehend (Au, 1979 and Johnson, 1981). Thus, word knowledge may be viewed within the context of what the learner knows and brings to the task of reading/comprehending a text. It does not view knowledge of meaning alone, but the entire conceptual framework elicited by word meaning. It is this general knowledge that interacts with the text to produce comprehension (Johnson, 1981). Therefore, vocabulary acquisition is an interactive process that focuses on the contributions of the learner's prior knowledge to the new word/concept to be learned.

Semantic Mapping

A vocabulary strategy which produces the interaction between prior knowledge and new information is semantic mapping. Mapping is a technique of structuring information in a graphic form,

Place Figure 1 about here

thereby allowing the learner to cluster and organize ideas (See Figure 1). For the purpose of vocabulary expansion, semantic mapping extends knowledge by displaying, in categories, words related to one another. The procedure can vary according to the topic or purposes of the map. Semantic mapping, through the graphic arrangement of words related to a concept, depict relationships and categories of the focal concept. (See Figure 2) The purpose of the graphic organizer serves to simplify or clarify the relationship between and among words. This type of graphic organizer can visually and auditorially familiarize the student with words or concepts, thereby enhancing recognition, fluency and relationships of new or familiar words/concepts in a new light. Thus, vocabulary is categorized and organized in a new way that facilitates comprehension. That is, students develop schemata for the variances of the focal word.

Place Figure 2 about here

The rationale for semantic mapping, as a prereading activity, is to familiarize the learner with new words in relation to known words. The goal of the familiarization training is to improve comprehension. The graphic presentation

of the new words, in relation to known words, serve as a springboard for discussion. The following steps are suggested in teaching with semantic mapping: (Johnson, 1980).

1. Select focal word or concept.
2. Write the word or concept on the chalkboard or overhead transparency.
3. Ask the students to think of as many words as possible that are related to the focal word or concept.
4. As the students contribute words, write them on the chalkboard connecting them to the focal term.
5. Allow for discussion as each new word is contributed.
6. Ask the students to use the new words in sentences.
7. When the students cannot think of more words, the teacher helps by focusing on target words he/she wants the students to learn.
8. Expand discussion of target words.
9. Use target words in sentences.
10. Read the selection.

The diversity in the utility of semantic mapping is without number. For example, in teaching reading skills through the basal program, word identification skills have been viewed as a separate entity to reading by most learners. To bring skill learning and reading as a unitary endeavor a teacher

may use the concept of mapping to focus attention to this reading endeavor. To illustrate, Figure 3 is representative of a word identification strategy. The

Place Figure 3 about here

strategy focuses on the concept of the phonogram. Word families found in this category are graphically displayed to facilitate and/or simplify the acquisition of vocabulary with similar linguistic patterns. Another implication of the strategy is the simplification of spelling tasks that often belabor handicapped learners. Drawing attention to the linguistic pattern consistency of some of our English words can alleviate undue stress in the learning process. The strategy affords the learner a positive view of the reading process. It further allows the learner to build words by using phonograms and combining them with other initial consonants and consonant blends. The activity enriches their vocabulary in two ways: (1) they learn that through the substitution procedure new words are formed and (2) it helps to reinforce the meaning of new words formed since each new word is also discussed.

The procedure follows the same steps as in semantic mapping,

i.e., the teacher introduces the phonogram and teaches the pronunciation. Next, the teacher instructs the learner to blend the initial consonant or consonant blend with the phonogram. Third, the teacher asks the children for other initial consonants or consonant blends that can be combined with the phonogram. If non-sensical words are found they are added to the map, followed by having the learner define the newly-formed nonsensical words. As the learner notices that the nonsensical words cannot be defined the teacher can: (1) write the words in the margin, or (2) include the words on the central map. This can serve to help the learner discern between real words and nonsense words in future game activities. As the learners contribute to the map, the teacher writes the newly formed words and a discussion of the new word follows. The final step is to have children use the new words in sentences. As the children advance through the exercise, more phonograms may be used.

The word identification strategy can be built gradually as children mature during the same lesson. Later the children can work in groups or in teams, e.g., to have a spelldown to see if they can recognize all the words or to determine, for example, which words are real words and which are nonsensical words.

The implications of the word identification strategies are numerous, but most important, it indicates the diverse application of semantic mapping to any skill or subskill in the basal reading program. The concept of mapping offers children an opportunity to perceive reading as a meaningful entity in the learning process. This fun dimension of reading could make the learner see the acquisition of skills in a realistic, nonthreatening situation.

In summary, word identification mapping allows semantic knowledge, pattern synthesis, orthographic knowledge, and lexical knowledge. These reasons provide for the learner vocabulary acquisition and vocabulary formation. Rumelhart, (1976); Minsky, (1975); and Johnson, (1980), have demonstrated the facilitation effect of prior knowledge on comprehension. The results of these studies have suggested that an individual's prior knowledge, plays an important role in comprehension. Comprehension is an active process that involves the dynamic interaction of schema. One's schema is used to organize and to interpret what is read or seen or heard. Schema theory, in part, seems to account for some of the inferences one draws from memory banks. Thus, the learner forms a mental image of their past experiences. Past experiences can range from concrete to abstract. Linguistic

patterns can be noted and the variations of words that can be obtained by changing the initial consonant or consonant blend, e.g., ball, -all, f, t. The signaling to the reader to note similar elements in words may serve to reduce the insurmountable anxiety that goes with learning vocabulary.

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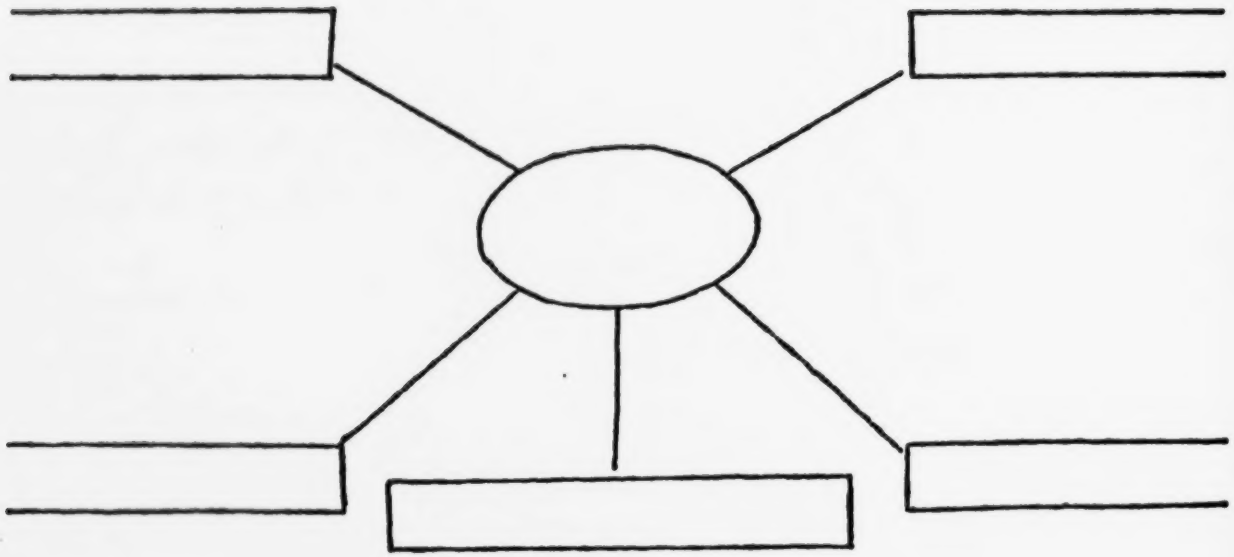

Figure 1. Example Generic Map

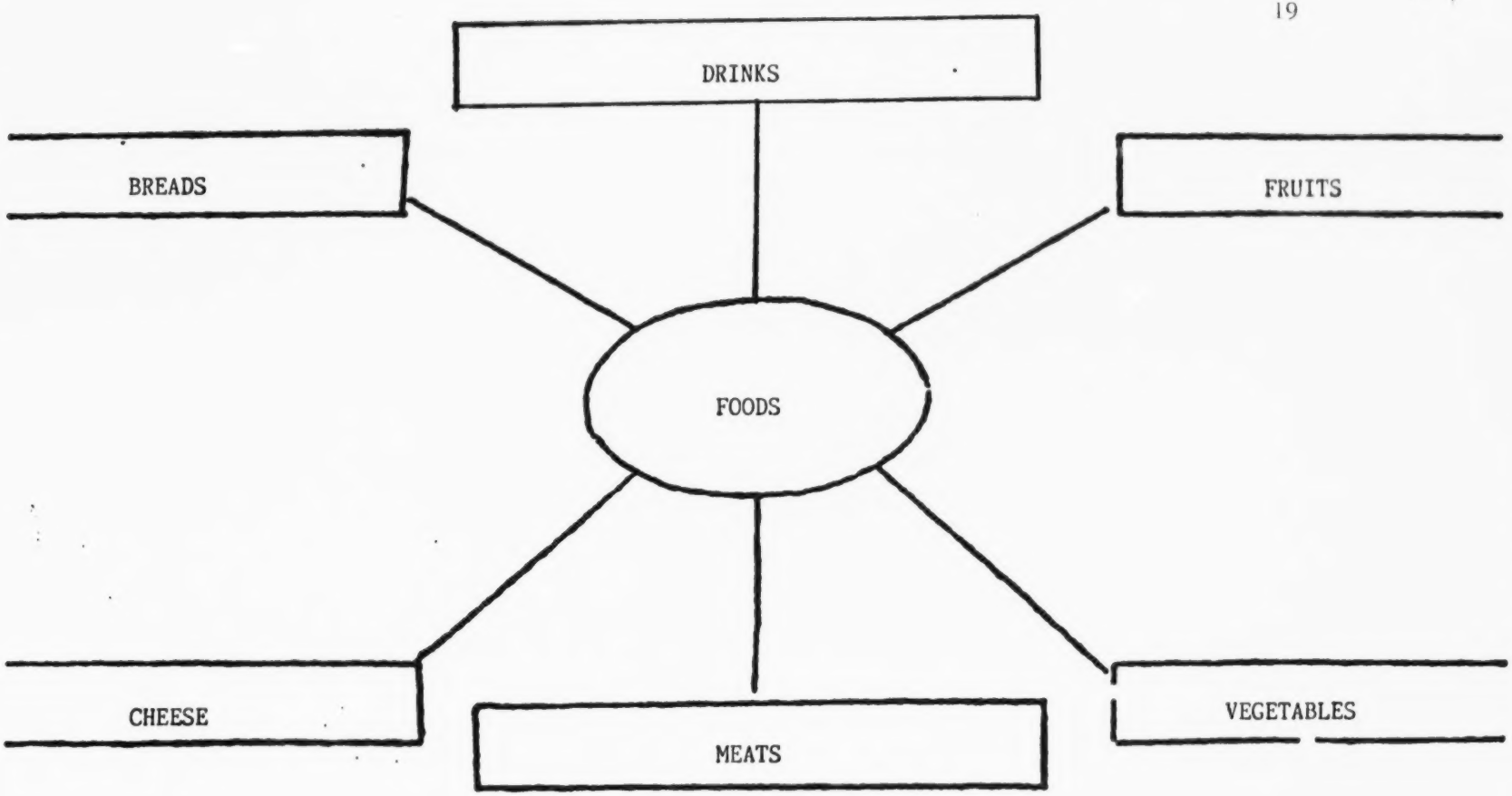

Figure 2: Semantic Map of Foods

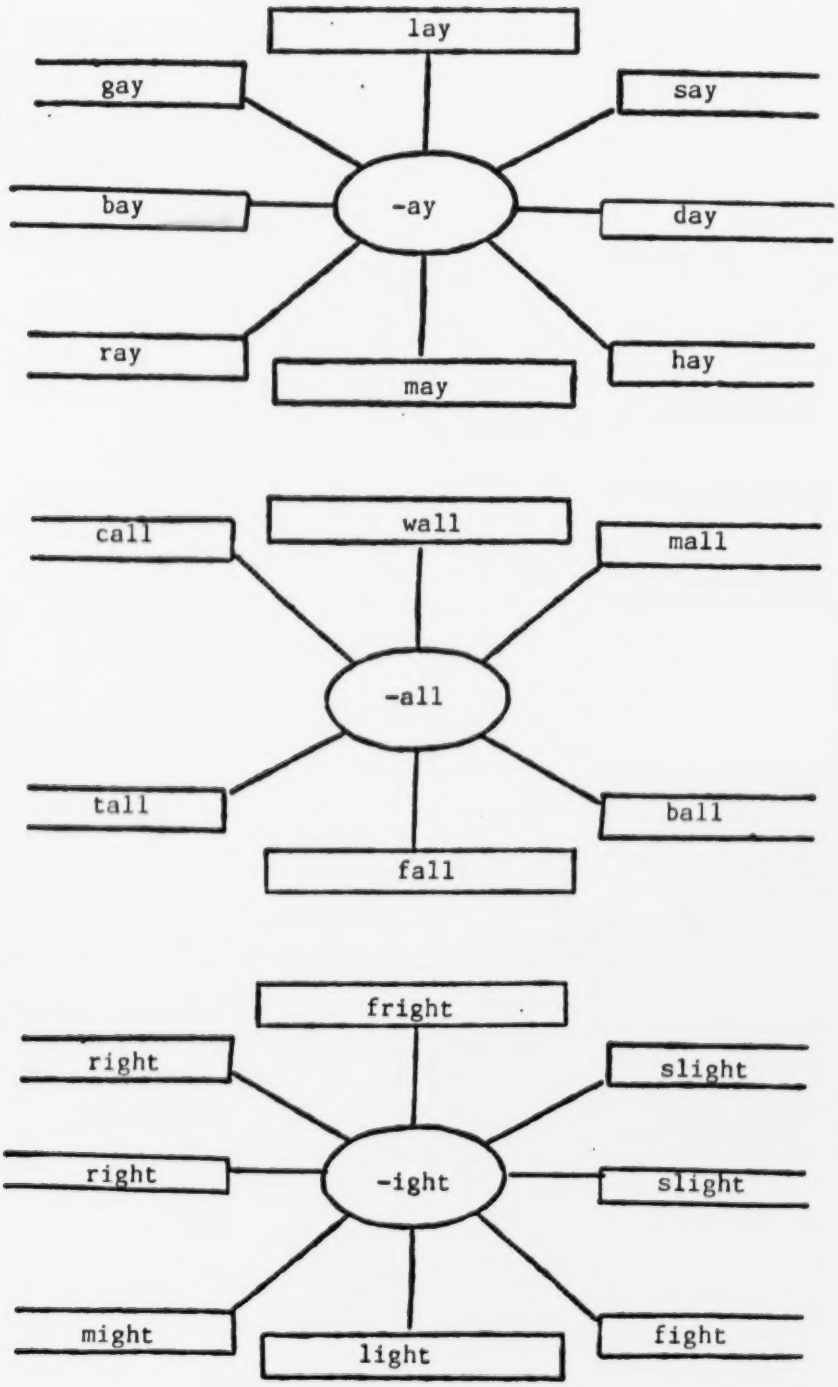

Figure 3: Semantic Map of Phonograms